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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,706	08/26/2003	David M. Avant JR.	5651-5	4061

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RALEIGH, NC 27627

EXAMINER

PAHNG, JASON Y

ART UNIT	PAPER NUMBER
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3725

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/648,706

Applicant(s)

AVANT, DAVID M.

Examiner

Jason Y. Pahng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-10 and 13-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-10 and 13-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 18, 2006 has been entered.

Double Patenting

Claims 17-21 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 10 and 13-16. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The amendment overcomes the claim rejections under 35 U.S.C. 112 made in the last Office action.

Claim Rejections - 35 USC § 102

The amendment overcomes the claim rejections under 35 U.S.C. 102 made in the last Office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luker (US 5,570,517) in view of Garforth et al. (US 6,068,693) and Mosley, Sr. (US 5,759,568).

With regard to claims 1 and 2, Luker discloses a pulverizing dryer for processing ceramic slurry (column 1, lines 13-15) including:

1. injecting slurry into a heated air stream at a temperature in the range of 500 and 1200 degrees Fahrenheit. flowing through a dryer (column 4, lines 26-32);
2. the dryer comprises a plurality of rotating paddles (Figure 3); and
3. heated air stream forces slurry through the plurality of rotating paddles to pulverize the slurry into individual mineral particles (column 4, lines 26-65).

As for separating individual mineral particles after the pulverizing drying step, in a closely related art, Garforth discloses separating mica from kaolin in order to reduce

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impurities (column 1, lines 7-18). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide Luker with separating individual mineral particles in order to reduce impurities, as taught by Garforth.

With regard to claim 6, Garforth already discloses separating particles by size (column 5, lines 1-5).

The claim also calls for the flow rate of air to be between about five thousand and fifty thousand cubic feet. In a closely related art, Mosley, Sr. teaches that air swept tubular dryers may be used with an air flow rate in the range of six thousand and 34 thousand cubic feet (column 4, lines 5-25) in order to process sludge containing solid waste (column 1, lines 12-15) with air temperature in the range of 500 and 1000 degrees Fahrenheit. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to teach Luker to use his air swept tubular dryer with an air flow rate in the range of six thousand and 34 thousand cubic feet in order to process sludge with air temperature in the range of 500 and 1000 degrees Fahrenheit, as taught by Mosley, Sr.

Claim 5, 7-10, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luker (US 5,570,517) in view of Garforth et al. (US 6,068,693) and Mosley, Sr. (US 5,759,568) as applied above, further in view of Cadoret (US 2004/0129177).

Claim 5 calls for separating particles into sand, mica, and kaolin. Garforth discloses separating mica from kaolin in order to reduce impurities (column 1, lines 7-18). Cadoret discloses separating sand [0019] in order to reduce impurities. Therefore,

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it would have been obvious to one skilled in the art at the time the invention was made to provide Luker with separating sand and mica from kaolin in order to reduce impurities, as taught by Garforth and Cadoret.

Claims 7, 9, 14, 16, 19, and 21 call for an air classifier. Garforth teaches that air separation may be used for particles greater than about 325 mesh (column 1, lines 19-22) in order to reduce impurities. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to provide Luker with air separation for particles greater than about 325 mesh in order to reduce impurities, as taught by Garforth.

Claims 8, 15, and 20 call for separating sand particles greater than about 100 mesh. Cadoret discloses an air cyclone in order to separate sand particles [0019]. As for the value of the size of the sand particles are greater than about 100 mesh. It would have been obvious to one skilled in the art at the time the invention was made to provide Cadoret with the value of the size of the sand particles are greater than about 100 mesh, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 10 and 17 call for the material to have a grit content of about five to 75 %. Cadoret already discloses a material with about five percent grit or about five percent of material with size greater than 325 mesh.

With regard to claims 13 and 18, Garforth is applied as applied in claim 6.

Response to Arguments

Applicant's arguments filed on December 18, 2006 have been fully considered but they are not persuasive. Applicant's argument is mostly moot in view of the new claim rejections provided in this Office action.

Applicant's arguments involving the Cadoret reference is moot with regard to the claims 1, 2, and 6 are moot because claims 1, 2, and 6 do not rely on the Cadoret reference.

With regard to the rest of the claims, Cadoret is not relied upon for its dehydroxylation. Cadoret is merely used for each of the specific steps as discussed above in each of the respective claim rejections.

Applicant does not present any additional new arguments regarding the rest of the claims.

Conclusion

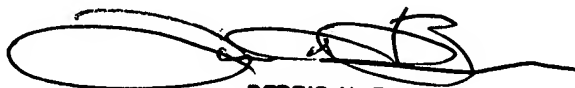
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Y. Pahng whose telephone number is 571 272 4522. The examiner can normally be reached on 9:30 AM - 8:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Banks H. Derris can be reached on 571 272 4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JYP

A handwritten signature in black ink, appearing to read 'D. Banks', with a large, stylized loop on the left side.

DERRIS H. BANKS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700